

CubeSat Magnetometer, Phase I

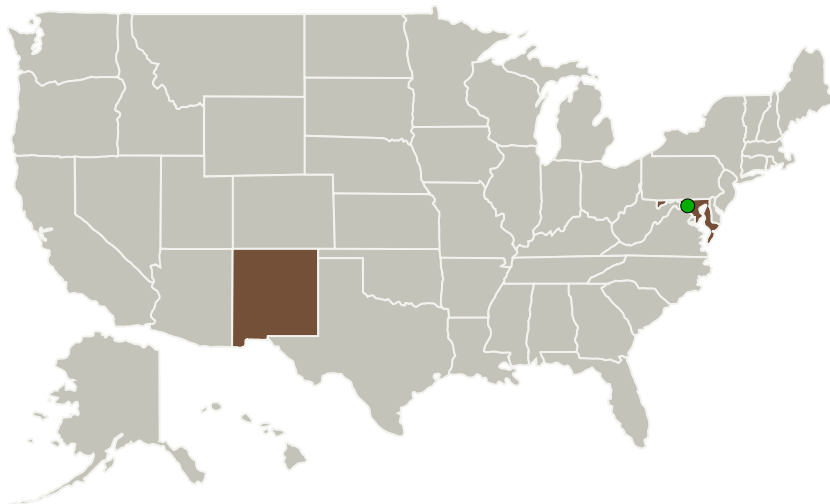
Completed Technology Project (2017 - 2017)



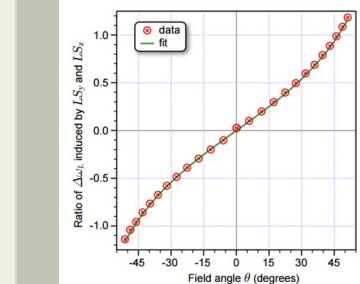
Project Introduction

Sensitive magnetometers play a key role in exploring the near-Earth environment, other planets and moons. Measurements using a constellation of spacecraft can provide a rich data set, but this approach requires magnetometers that have stable calibration as well as low size, weight and power. This proposal will develop an all-optical atomic magnetometer whose calibration can be traced to quantum properties of the atoms. It has already demonstrated high sensitivity in the laboratory. The Phase I work will show that it can be flown on a CubeSat by demonstrating that the form factor, weight, and electrical power can be made compatible with requirements for microsatellites. In Phase II we plan to build a version that could fly on balloons or aircraft.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Southwest Sciences, Inc.	Lead Organization	Industry	Santa Fe, New Mexico
 Goddard Space Flight Center (GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland



CubeSat Magnetometer, Phase I
Briefing Chart Image

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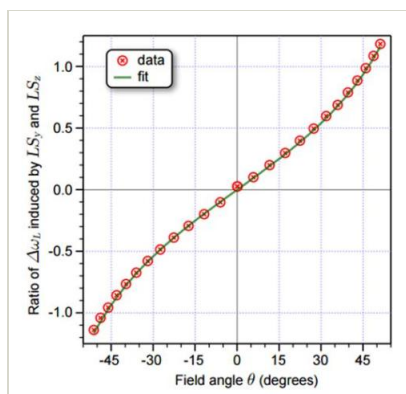


Primary U.S. Work Locations

Maryland

New Mexico

Images



Briefing Chart Image

CubeSat Magnetometer, Phase I

Briefing Chart Image

(<https://techport.nasa.gov/image/133376>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Southwest Sciences, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

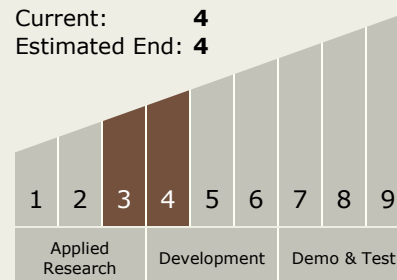
David C Hovde

Technology Maturity (TRL)

Start: 3

Current: 4

Estimated End: 4



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Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.3 In-Situ Instruments and Sensors
 - └ TX08.3.1 Field and Particle Detectors

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System